



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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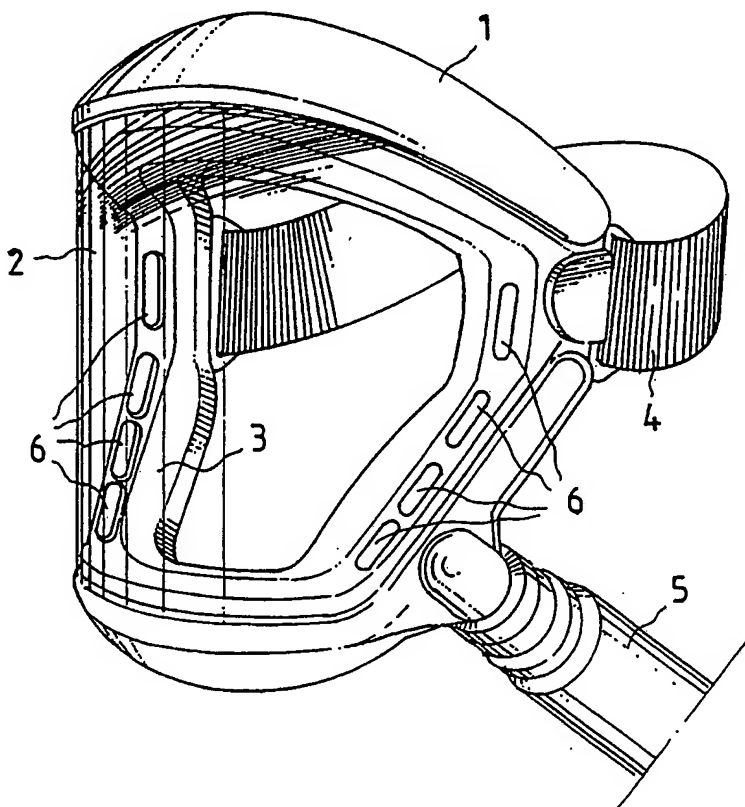
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(54) Title: FACE SHIELD

## (57) Abstract

A face shield comprising a frame (1), a glass (2) attached to the frame, a padding (3) between the frame and the face and an attaching portion, for example, a ribbon (4) encircling the head, and to which face shield air is led. The frame is hollow so that the air led into the face shield is directed into the hollow frame and the frame comprises openings through which the air is discharged inside the face shield.



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## Face shield

The present invention relates to a face shield comprising a frame, a glass attached to the frame, a padding between  
5 the frame and the face and an attachment portion, like a ribbon encircling the head, and into which face shield air is led.

Known, so called whole face masks of this type made of  
10 rubber, comprising regulating valves and fastened by ribbons hurt and are heavy as well as expensive to make. Because of the weight they have to comprise 4 to 5 buckles, whereby they are difficult to put on. Especially  
15 weldings masks, into which air is led through canals, are often very heavy and the portions encircling the head are usually made of hard plastic. The big dimensions complicate use and edge sealing is difficult to  
20 accomplish. So called hoods made of, for example, plastic cloth, paper or plastic are reasonably priced, but difficult to use and in case of an accident they may lead to risk of suffocation.

The aim of the invention is to achieve a new type of face  
25 shield which is easy to use as well as light. The face shield according to the invention is characterized by the frame being hollow so that the air directed to the face shield is directed to the hollow frame, and that the  
30 frame comprises openings through which the air is discharged into the face shield. Said face shield is intended for use with a blowing device or compressed air. The hollow frame made of light and flexible plastic  
yields according to the shape of the face and is of such  
a size that the mouth, nose and eyes will stay inside the  
frame. Because the shield is blow moulded, the cheapest  
35 plastic qualities may be used as raw materials and, in addition, all essential parts are formed in one stage of operation. The face shield comprises a few parts which

5 makes it reasonably priced and light. Due to the form and lightness of the construction it is possible to use a fastening ribbon known from sports glasses, which ribbon is easier to handle than the previously used groups of ribbons comprising two or more ribbons.

10 By placing press buttons or other suitable fastening means in the frame it is possible to attach an additional shield made of textile, plastic or paper and covering the surface of the head remaining outside the frame. Due to the new structure of the face shield the dimensions of it are such that a hardhat, hearing protectors or even a welding mask may easily be used simultaneously with it. There is also room for spectacles inside the face shield.

15 One embodiment of the invention is characterized in that the openings are elongated slots located at the sides of the frame and are directed towards the glass so that the air is discharged in front of the face to be breathed and simultaneously to blow away possible mist from the inner surface of the glass. Thus enough air is achieved for both breathing and removing mist even when the wearer of the face shield breathes heavily or speaks.

25 Another embodiment of the invention is characterized in that the padding between the frame and the face consists of a foam plastic with open cells so that the air, which has been led in to be breathed can together with the exhalation air exit through said padding from inside the face shield. Overpressure is constantly kept up in the face shield so that there is a continuous air flow through the padding. The padding portion can be manufactured in such a way that it can be easily changed in order to maintain hygienic demands. It can, for example, contain a tape attachment. The replaceable paddings may be of different size and thickness, whereby the best fitness is achieved for faces of different

sizes.

The invention will be described in the following with reference to the enclosed drawings, in which

5 figure 1 is a diagonal front view of the face shield, figure 2 is a side view of the face shield, and figure 3 is a sectional view of the face shield.

10 The face shield comprises a frame 1, a glass 2 attached to the frame, a padding 3 located between the frame and the face and a ribbon 4, which is tightened around the head. Air is led into the face shield through a hose 5. The frame 1 is hollow so that the air led into the face shield is directed into the hollow frame and the frame 1  
15 comprises openings 6, through which the air is discharged into the face shield. The openings 6 are elongated slots located at the sides of the frame 1 and directed towards the glass so that the air is discharged in front of the face to be breathed and simultaneously to blow away  
20 possible mist from the inner surface of the glass. The padding 3 between the frame 1 and the face consists of a foam plastic with open cells so that the air, which has been led in to be breathed can together with the exhalation air exit through said padding from inside the  
25 face shield.

Especially in connection with a blowing device and also with compressed air a face shield of this type is needed, which is easy to use, light and not expensive. The  
30 padding does not necessarily have to be according to the example, it may also have closed cells or in some other way air impermeable, whereby the extra air is removed through a separate exit opening. In this case glass does not mean glass material but a transparent shield plate,  
35 which in reality is transparent plastic or so called plexiglass.

Claims

1. A face shield comprising a frame (1), a glass (2) attached to the frame, a padding (3) between the frame and the face and an attaching portion, for example, a ribbon (4) encircling the head, and to which face shield air is led, characterized in that the air led into the face shield is directed into the hollow frame (1), and that the frame comprises openings (6) through which the air is discharged inside the face shield.

2. A face shield according to claim 1, characterized in that the openings (6) are elongated slots located at the sides of the frame (1) and directed towards the glass (2) so that the air is discharged in front of the face to be breathed and simultaneously to blow away possible mist from the inner surface of the glass.

3. A face shield according to claim 1, characterized in that the padding (3) between the frame and the face consists of a foam plastic with open cells so that the air, which has been led in to be breathed can together with the exhalation air exit through said padding from inside the face shield.

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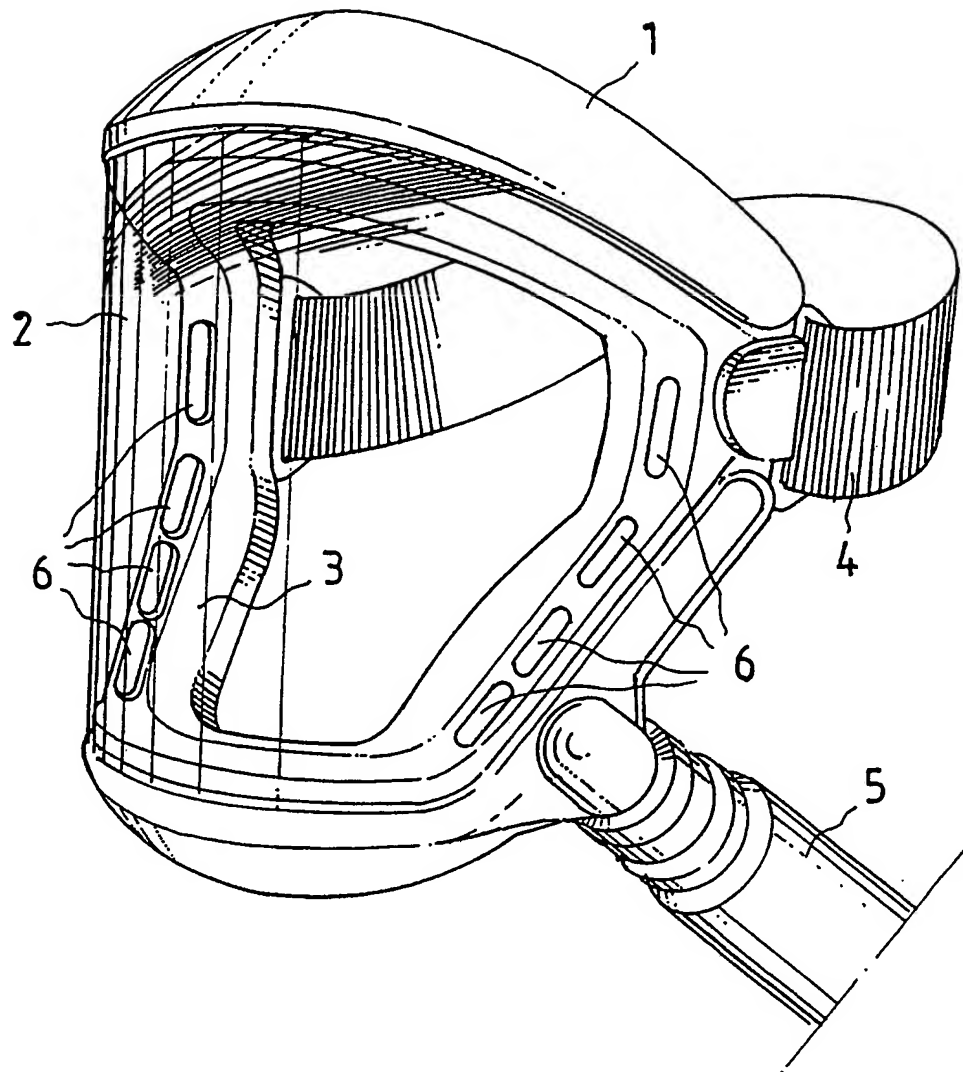


Fig.1

1/2

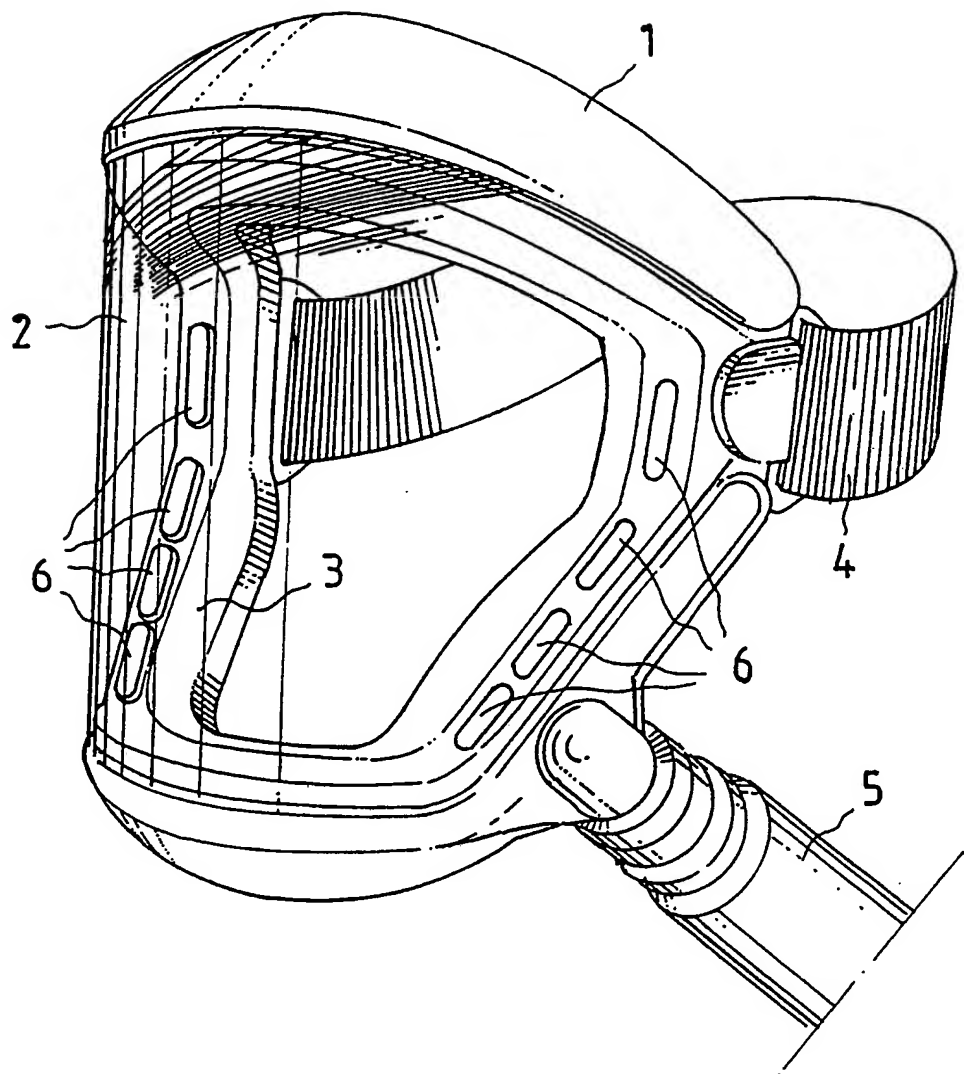


Fig.1

2/2

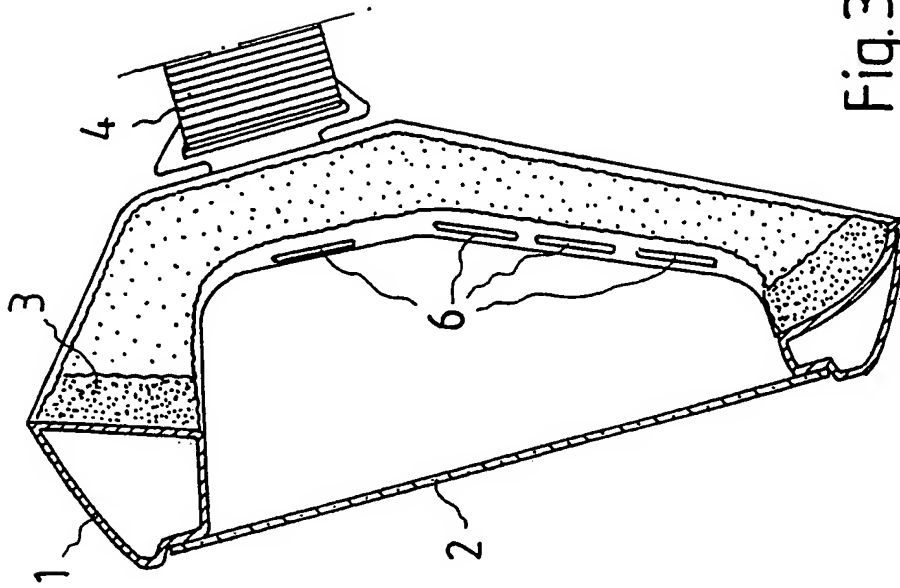


Fig. 3

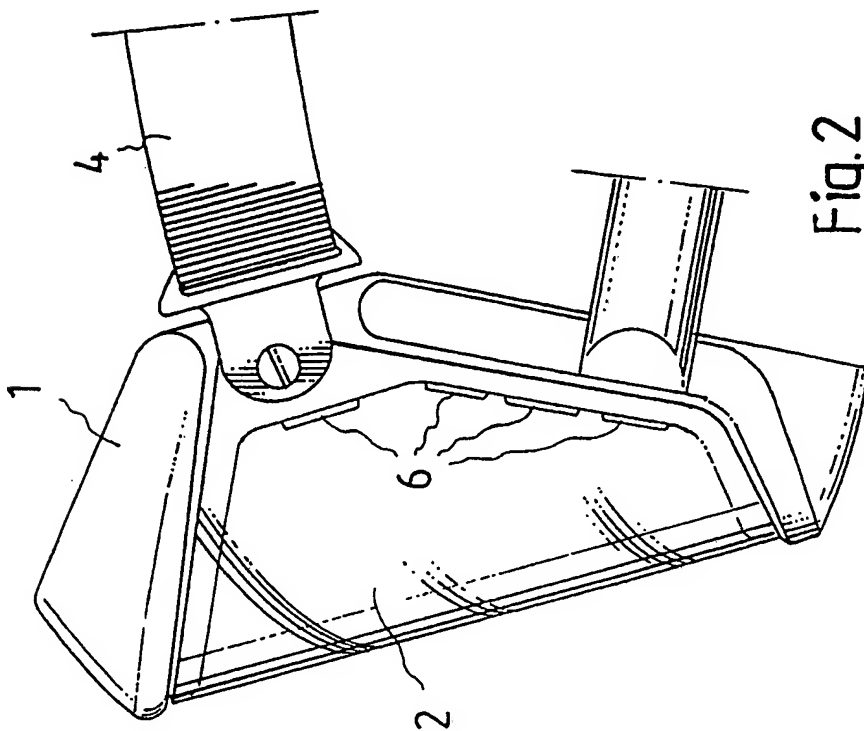
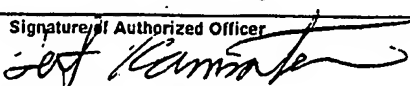


Fig. 2

# INTERNATIONAL SEARCH REPORT

International Application No PCT/FI 91/00174

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>6</sup>		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC5: A 61 F 9/04 // A 62 B 7/12, 18/02		
<b>II. FIELDS SEARCHED</b>		
Minimum Documentation Searched <sup>7</sup>		
Classification System	Classification Symbols	
IPC5	A 61 F; A 62 B	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched <sup>8</sup>		
SE,DK,FI,NO classes as above		
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT<sup>9</sup></b>		
Category	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>
A	SE, B, 354416 (OY ESAB) 12 March 1973, see the whole document --	1
X	SE, B, 455158 (MAREK BLASIAK) 27 June 1988, see page 2, line 22 - line 33; figure 2 --	1-3
A	DE, B, 1265342 (HENDRIK JOHANNES CORNELIS HANNEMA) 4 April 1968, see figure 1; claim 1 --	1
A	DE, A1, 2932348 (DAIMLER-BENZ AG) 26 February 1981, see page 4, line 24 - page 5, line 15 --	1
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